

A Cirolanid from subterranean waters of Turkey (Crustacea, Isopoda, Flabellifera)¹

by

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With 4 figures

ABSTRACT

Turcolana cariae n. g. n. sp. is described. It is the first Cirolanid from subterranean waters of Turkey. Its affinities with the south-mediterranean genus *Typhlocirolana* is discussed.

The ability to roll into a ball is shown only in three genera of the Cirolanid family: the Mexican genus *Creaseriella*, the European *Faucheria* and the African *Skotobaena*. All these are fresh-water and subterranean forms which reached this ability independently and by very different morphological features. The adaptative meaning of such convergence, according to RACOVITZA (1912) and MARVILLET (1976), might be explained as a defensive strategy which was adopted, for the same environments, also by other isopods as Sphaeromatidae and Microparasellidae (see Argano and Pesce, 1979). Nevertheless, no experimental evidence supports this hypothesis.

The Cirolanid described below, belonging to a new genus, the first from Turkey, constitutes a further evidence of the existence, in the subterranean aquatic environments, of ecological conditions which are favourable to the adaptative success of this behavioural feature.

The description is from a single specimen only, collected in 1970 (ARGANO *et al.* 1972); it is rather frequent to work on a unique specimen when reporting on particular environments such as subterranean or abyssal ones. The description's delay is due to the waiting for another trip in the south-west limestone area of Turkey, which was planned also for the collection of other specimens, but it was never done. However, the morphological characters of this cirolanid are remarkable and they can quite assure its generic identity.

¹ Ricerche dell'Istituto di Zoologia dell'Università di Roma nel Vicino Oriente: 81.

Turcolana, new genus

Diagnosis. — Eyeless and unpigmented cirrolanid. Body long, slender, convex and able to roll completely into a ball. Pleonite 1 complete and long; pleonites 2-4 complete and short; pleonite 5 laterally covered by the preceding pleonite. First pereopod massive and prehensile; pereopods 2-7 ambulatory. First and second pleopods with undivided rami, exopods of pleopods 3-5 with transversal suture; exopods of all pleopods and endopods of first and second pleopods with a few terminal plumose setae. Pleotelson long and convex, with a terminal incisure receiving the cephalon when the body is rolled. Uropods very large, subovoidal and flattened; propod large; exopod massive and oblong, much shorter of the large, spatulate endopod; both exopod and endopod with terminal and lateral setae. Articulation of uropods permitting only vertical movements; uropods completely withdrawing into the telson cavity (in a space between the wall of the telson and the pleonal pack) when the body is rolled.

Type-species: the only known species of *Turcolana* is described below.

Turcolana cariae, new species (Fig. 1-4)

Material examined. — An unique female specimen from a fresh-water well (4 m depth) near Çetibeli (Mugla vilayet), road between Ula and Köycegiz, at 200 m on the sea level (Argano, Boitani and Cottarelli coll., June 12, 1970). Type, partially

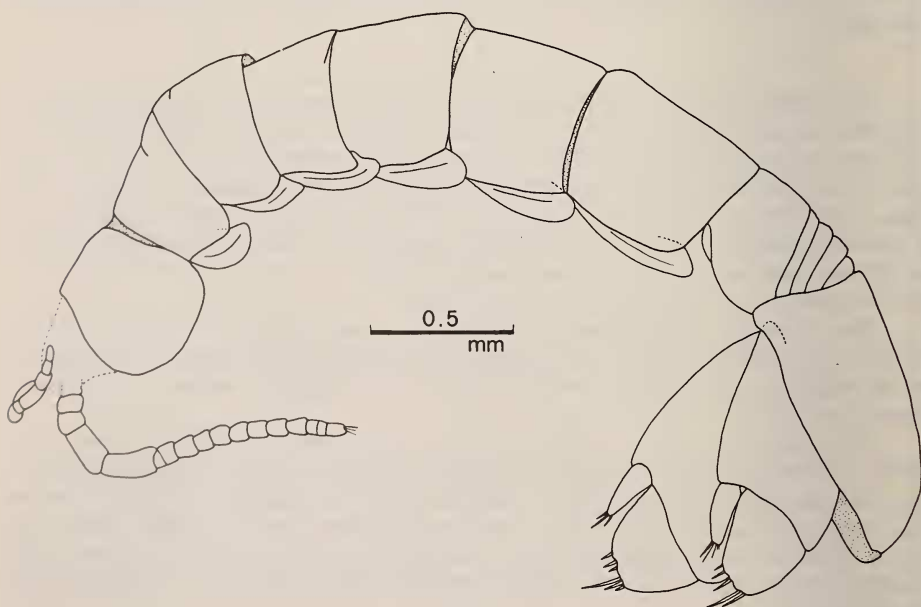


FIG. 1.

Turcolana cariae n. g. n. sp., lateral view.

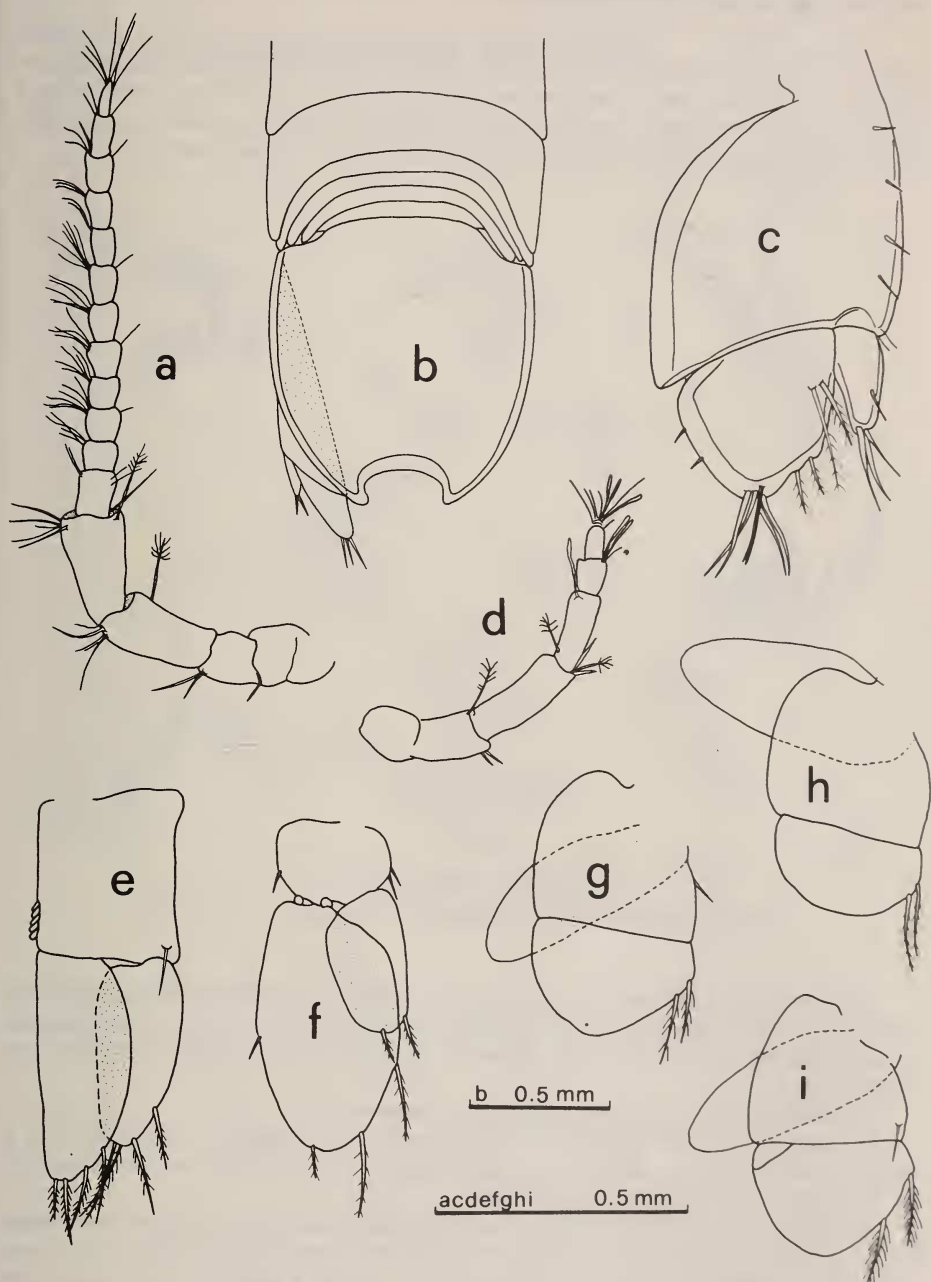


FIG. 2.

Turcolana cariae n. g. n. sp.

a: antenna; b: pleotelson, dorsal view; c: uropod; d: antennula; e-i: pleopods 1-5.

dissected and mounted on coverlips with polivinyl-lactophenol, in the collections of the "Museum d'Histoire Naturelle de Genève".

Description. — Length 4.8 mm, width (5th pereonite) 1.3 mm, pleotelson length 1 mm. Eyeless and unpigmented. Cephalon damaged during collection and dissection. Body long, slender and convex, able to roll into a perfect ball. Pereonites 1 and 5-7 subequal in length, pereonites 2-4 subequal in length, somewhat shorter than the other pereonites. Coxae carinatae, with posteroventral corners rounded.

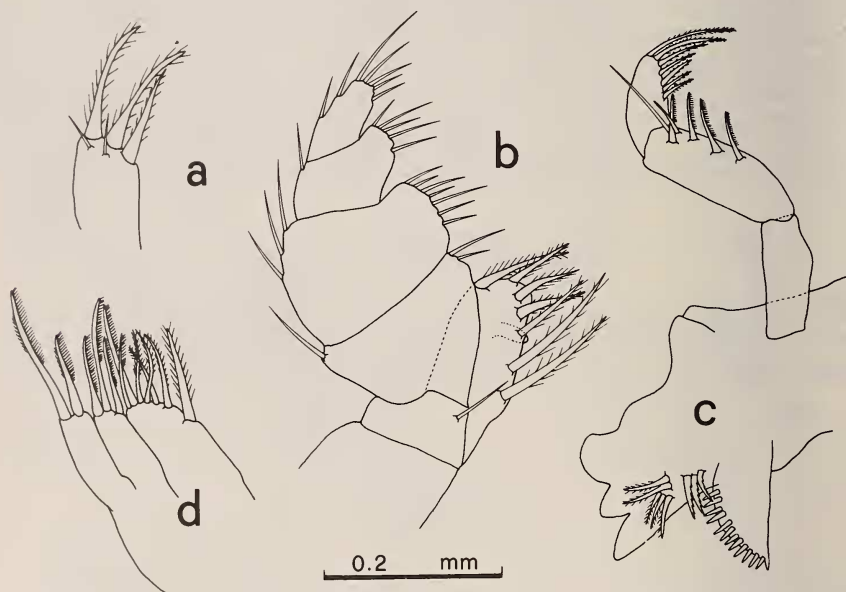


FIG. 3.

Turcolana cariae n. g. n. sp.

a: maxilla, inner lamina; b: maxilliped; c: mandible; d: maxilla 2.

First pleonite longer than others, with a large cavity on its posterior margin including the other four pleonites. Pleonites 2-4 subequal in length, shorter than the first, complete and rounded in the epimeral area. Pleonite 5 straight and covered laterally by the pleonite 4.

Pleotelson ovate, with a broad posterior incisure.

Antenna 1 no much longer than the peduncle of the antenna 2; flagellum with 3 articles bearing esthete. Antenna 2, short, robust, reaching the posterior margin of the 2nd pereonite; flagellum 12-segmented.

Mandibles with 3-cusped incisors, lacinia reduced to a light prominence with some spines; four pectinate spines are implanted on the central article of the palp. Inner lamina of the maxilla with 3 long and barbed setae, and 2 subapical thin spines. One retinaculum on the maxilliped's endite. No other particular features on the mouthparts.

First pereopod massive and prehensile, ventral margin of propod with a strong central bifid spine. Pereopods 2-7 ambulatory, slightly increasing in length posteriorly.

Pereopods 2-4 with robust barbed spines on the sternal region of ischium-propodus. Pereopods 5-7 with barbed spines, often bearing slender setae on distal region of ischium, merus and carpus.

Uropods and their mechanism as in the generic diagnosis.

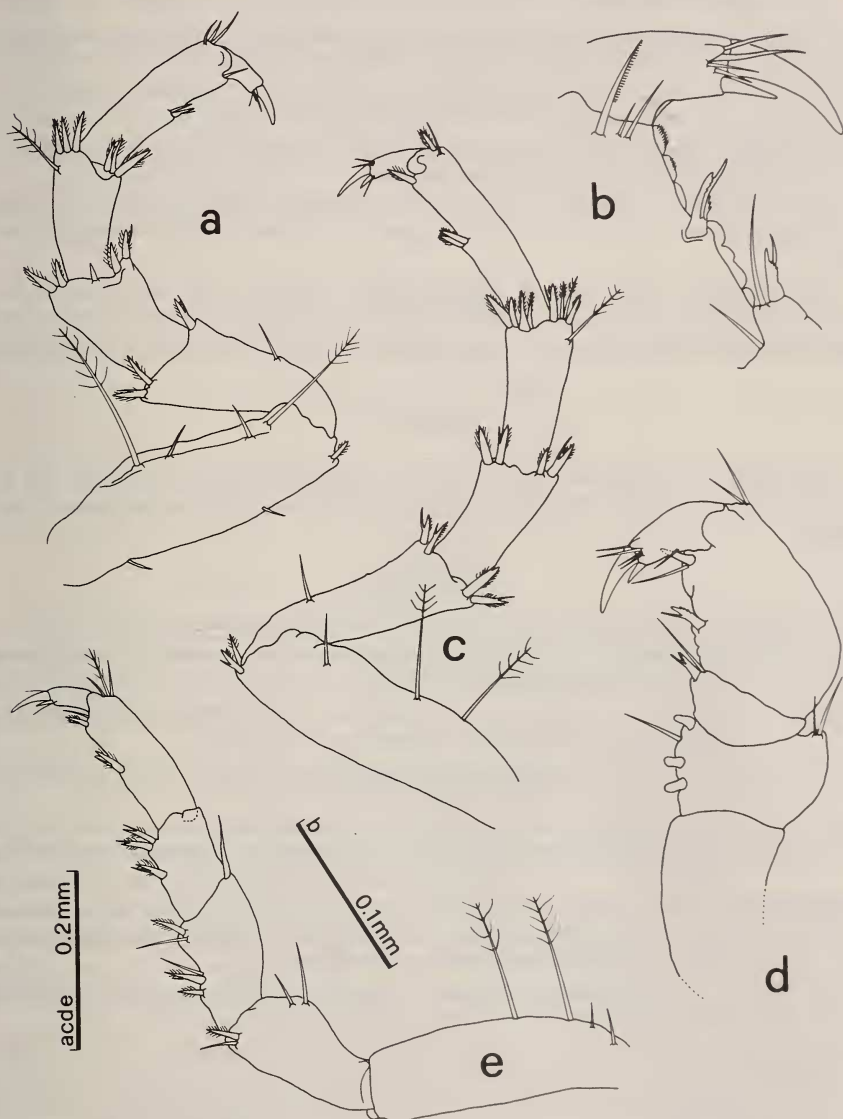


FIG. 4.

Turcolana cariae n. g. n. sp.

a: pereopod V; b: pereopod I, detail of the propod; c: pereopod VII; d: pereopod I;
e: pereopod II.

Etimology. — After the ancient name 'Caria' of the region were the new species has been collected.

Relationships. — The extraordinary modification of the uropods and the complex adaptation to rolling in a perfect ball of the body are the most peculiar characteristics of *Turcolana* n. gen.

The analysis of the pattern of the pleonal segmentation, as suggested by BOWMAN (1975), permits some considerations. There is not a correlation between the ability to roll the body into a ball and the reduction of the free pleonites as reported in MONOD (1972). *Turcolana* can be correlated with the genera of the BOWMAN's type "b" (i.e. 5 free pleonites, lateral margins of the 5th pleonite reduced). Such a correlation supports our conclusions about the relationships between *Turcolana* n. gen. and one of the genera in the above type "b", i.e. *Typhlocirolana*.

The latter genus is distributed, with different species, in spring, wells and caves of the Majorca Island, North Africa, Near Orient; it has been recently collected also in Sicily.

The convexity of the body of *Typhlocirolana*, unable to roll, the structure of its pleopods, the shape of the first pleonite and also the general features of the uropods, let us to suppose a derivation of the very specialised genus *Turcolana* from *Typhlocirolana*.

RÉSUMÉ

Description de *Turcolana cariae* n.g. n.sp., premier isopode cirolanide des eaux souterraines de la Turquie. On discute l'affinité avec le genre sud-méditerranéen *Typhlocirolana*.

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